RedFame

International Journal of Social Science Studies
Vol. 4, No. 10; October 2016
ISSN 2324-8033 E-ISSN 2324-8041
Published by Redfame Publishing
URL: http://ijsss.redfame.com

The Relationship between Writing Dyslexia and Academic Performance of Upper Primary Pupils in Public Schools in Changamwe Sub-county, Kenya

Veronicah Kaluyu [1] & Pamela Ooko [2]

[1]Africa Nazarene University (ANU). Box 53067, 00200, Nairobi, Kenya

[2] Africa Nazarene University (ANU). Box 53067, 00200, Nairobi, Kenya

Correspondence: Veronicah Kaluyu, Africa Nazarene University (ANU). Box 53067, 00200, Nairobi, Kenya.

Received: July 20, 2016 Accepted: August 5, 2016 Available online: September 8, 2016

doi:10.11114/ijsss.v4i10.1867 URL: http://dx.doi.org/10.11114/ijsss.v4i10.1867

Abstract

The present study compared the relationship between writing dyslexia condition and academic performance in upper primary learners in Kenyan public schools in Changamwe Sub County, Mombasa County. Correlational Ex-Post Facto research design was used based on three major examinations done in Term 1 and Term 2. The sample for the study consisted of 160 learners and 43 teachers from six different schools. The study used a purposive sampling method. Questionnaires were used to collect data from teachers. To test Reliability, the test-retest method was done by using both Cronbach's Alpha and Pearson's correlation coefficient (r) at 5 percent critical level. Pearson product moment correlation was used to test hypotheses while Descriptive statistics such as mean, frequencies, percentages, standard deviations were used to summarize data. The study found out that there was a statistically significant relationship ($p < 0.05$) between academic performance and writing ($r = 0.4912^*$, $p = 0.0000$) in upper primary pupils in public schools. The study recommends formulation of education policies catering on screening, teaching, learning, assessment and examination of dyslexic pupils in public primary schools in Kenya. The study also recommends restructuring of the teacher training curriculum to equip teachers with skills to handle writing dyslexics.

Keywords: dyslexia, writing dyslexia, academic performance

1. Introduction

1.1 Writing Dyslexia

The term Dyslexia is derived from two Greek words 'Dys' meaning trouble and 'lexia' meaning words (Berninger & Wolf, 2009). Dyslexia's first discovery was by Oswald Berkhan in 1881 (Berkhan, 1917). The condition was named Dyslexia by Rudolf Berlin in 1887 while associating it with difficulty in reading and writing. According to the International Dyslexia Association (2012), the world's population estimated to have Dyslexia is put at 10-20 percent , while 13-14 percent of the school-going children in America display signs of dyslexia (IDA, 2009). Although this learning condition is acknowledged in many parts of the world, the actual numbers affected by the condition may not be known in Africa, due to lack of awareness and a clear definition (Iwan, 2013). Egypt assumes that dyslexia affects only 1 percent of the population. In South Africa it is estimated that 10 percent of the people are suspected to have dyslexia (Iwan, 2013). In Kenya, it is not clear what percentage is affected though the prevalence is estimated to be about 10 percent (Symthe, Everatt, Ocampo, & Gyarmathy, 2004).

Writing is a complex activity that requires coordinating of the cognitive, linguistic, and motor processes (Sumner et.al 2013). Writing also involves the use of punctuation marks which include capital letters, commas, full stops, question marks, proper use of tenses, exclamation marks among others. The concept of writing dyslexia can be defined as a difficulty with spelling and handwriting. Writing dyslexia manifests in illegible handwriting and taking a long time to form letters and complete written assignments. Writing dyslexia mostly affects how a learner writes, organizes ideas or shapes letters as they write. These learners have difficulties in phonemic awareness skills such as rhyming the letters in words, sequence of sounds in words, segmenting (breaking words into sounds), and blending of words (putting together).

Pupils with writing dyslexia may show confusion between letters. Writing Dyslexics also have problems with Grammar and spelling errors. Other errors may be non-spelling related errors as word omissions, additions, capitalization,

punctuation and semantic errors. They also have difficulty organizing and sequencing information, writing paragraphs, essays and reports. Children who have a writing impairment would struggle in writing (Dockrell, Lindsay, & Connely, 2009). Writing can therefore affect academic performance in that dyslexics tend to be slow at writing, a factor which can deter them from completing assignments or timed compositions (Thomson 2008; Sumner & Connely 2013). Their thought process is also affected as they tend to forget very first due to inefficiency of the short term memory. Learners with writing dyslexia are known to have spelling problems in addition to reading difficulties (Callens, Tops, & Brysbaert, in press; Swanson & Hsieh, 2009).

O' Toole (2010) states that learner's understanding of information is demonstrated by their written work. Since dyslexia affects one's writing ability, such a learner may suffer low self-concept which in turn may lead to low academic performance (Pekrun, Elliot, & Maier, 2009).

From the literature reviewed, it was apparent that learners with reading and writing problems experience a lot of problems in the primary schools. Some of them are stigmatized and humiliated by the teachers, Others are labeled as lazy, unteachable or as having behavioral issues. This particularly drew the researcher to find if there could be a relationship between writing dyslexia and academic performance.

1.1.1 Theoretical Implication of the Study

The theory that guided this study was the Phonological theory (Ramus, Rosen, Dakin, Day, Castellote, White & Frith, 2003). The theory endeavors to explain sound development in a language and how the sound is used to encrypt meaning. The phonological theory further explains that sound processing results from a deficiency in association between the grapheme (letter) and phoneme (sound). If a learner has a problem in relating the sound and symbol in a word, the learner may not read and pronounce the word correctly.

According to Hulme and Snowling (2009), dyslexic childrens' language learning is affected by how they denote, keep and recover speech sounds. This hinders how they associate the symbol and sound as they read and write it down. Most dyslexics erase phonemes, exhibit poor phonological awareness, short term memory and are slow in salvaging information in rapid naming tasks (Hulme & Snowling, 2009). Other errors may be non-spelling related errors as word omissions, additions, capitalization, punctuation and semantic errors. They also have difficulty organizing and sequencing information, writing paragraphs, essays and reports. This deficiency will also affect the learner as they write down words that they have just seen or heard.

1.2 Importance of the Problem

Academic performance is a major indicator of Quality Education in an individual or school set-up. Quality Education manifests itself in Economic growth, industrial growth and the overall development of the country. In Kenya several studies have been done to establish the causes of poor academic performance in schools. However in all those studies no one has ever talked about the effect of writing dyslexia on academic performance. The Sessional Paper No 1 (Republic of Kenya, 2005), has no accurate data on the number of learners with learning difficulties in primary schools in Kenya. With no reliable data on special needs children in the country, dyslexia as a learning difficulty is largely ignored. Public primary schools in Changamwe Sub-County had dismal performances in KCPE between the years 2012-2014. The poor performance in KCPE in the county elicited the need for this study, which attempted to establish if there was a relationship between writing dyslexia and academic performance.

1.3 Relevant Scholarship Studies on Writing Dyslexia

In a study done by Osborne (1999) to investigate the performance of dyslexics undertaking higher education in written assessments. The researcher used a control group and an experimental group. The students were given written tasks and their scores were investigated in two types of written assessment: coursework and exams. The students suspected to have dyslexia were allowed extra time and, use of a word processor. Despite these provisions, analysis of the marks showed that the students with dyslexia obtained lower scores than the control group, particularly on the exams. Another study done by Farmer, Riddick, and Sterling (2002) compared the writing skills of four higher education students with dyslexia with those of four age matched control students without learning problems. The students did a free narrative writing task. The study Results found that the students with dyslexia performed poorer than the control group students in multisyllabic words, spelling of words. They had more spelling and lexical errors, as well as a number of grammatical errors involving verbs and function words. No differences in the average number of written words, the number of text construction errors, or punctuation errors were observed. The scholarship finding agrees with the findings of this study which found that there was a strong positive correlation between writing dyslexia and a learner's academic performance. Farmer *et al*, (2002) reported that students with dyslexia were more prone to using simple and familiar words and sentences. O'Mahoney et.al (2008) reported that physiological factors and intelligence of the learners will determine the writing speed. Rose view (2009), stated that motor skill affected the rate at which handwriting can be produced. Other available studies listed

factors affecting academic performance as quality of curriculum (World Bank Policy Paper on Education,1990), School leadership (Eshiwani, 1983), Sufficient knowledge Kirigia (1991), and socioeconomic factors (Katana & Jagero, 2010).However these studies did not relate writing dyslexia to academic performance.

1.3.1 Objective of the Study

To find out the relationship between writing dyslexia and academic performance in upper primary pupils in public primary schools in Changamwe Sub County.

1.3.2 Research Question

What is the relationship between writing dyslexia and academic performance in upper primary pupils in public primary schools in Changamwe Sub County?

1.3.3 Hypothesis

The hypothesis formulated in order to carry out the investigation stated that: There is no statistically significant relationship ($p < 0.05$) between writing dyslexia and academic performance in upper primary pupils in public schools in Changamwe Sub County, Kenya. Deleted repeated sentence

2. Method

The researcher used the correlation Ex-post facto research method to describe the nature of the relationship between these variables by identifying the magnitude of the relationship using a statistical measure (r). This design uses data that is already collected for correlating the relationship between the variables (Kerlinger, 1986).

In order to find a measurement between writing dyslexia and academic performance, the researcher asked the 160 pupils with dyslexic characteristics to do a ten-minute timed composition test. The students were to write two paragraphs about themselves. The researcher marked and counted students with problems on sentence construction, the spelling of words, language level used, speed of writing, size of letters and spacing of letters. These were then analyzed and tabulated in Table 4.

2.1 Population and Sampling of the Study

The population of the study comprised of upper primary learners from 20 public schools in Changamwe Sub County, Mombasa County. In the study, purposive sampling was used. A total of 160 learners constituted the sampling group. In addition, 43 English language teachers helped in identifying learners who had dyslexic characteristics.

2.2 Data Collection Tools

Two different scales were used in the study for the purpose of determining whether writing affected academic performance, questionnaires were used to collect data from teachers and the Bangor dyslexia test was used to identify dyslexic pupils. The analysis of data was done using Stata11 Statistical Package. In addition correlational analysis was carried out to find the relationship between writing and academic performance.

2.3 Reliability Analysis

According to Kothari (2004), a research instrument is reliable when it gives consistent results .The reliability of an instrument can be improved by regulating the conditions under which a measurement takes place. The subjects of this study were identified and screened by teachers before administration of the Bangor Dyslexia Test to confirm dyslexic characteristics in them. Pilot-testing of the questionnaires was done in one of the non-sampled schools. Consequently a test for reliability was carried out among 20 pupils consisting of 10 females and 10 males within a span of two weeks using the Test- Retest method. To find the internal consistency techniques of Cronbach's Alpha were used. A coefficient of 0.6-0.7 is acceptable although a reliability coefficient of 0.8 or higher is always preferred (Mugenda & Mugenda, 2003). The Bangor test presented Cronbach's Alpha scale reliability coefficient of 0.8984 while the teacher questionnaire's coefficient showed 0.6002. The Test-Retest Bangor test scores had a strong positive Pearson's correlation coefficient of 0.8155. The Bangor dyslexia test and the teachers' questionnaires were therefore considered reliable for the study.

2.4 Participant Characteristics

The participants for the study were drawn from upper primary learners from classes 5-8.They were purposively selected from 6 of the 20 schools in the Sub-county. Those with dyslexic characteristics in the English Language class were identified after disqualifying those who showed signs of inability to read and write effectively as a result of other factors such as teacher quality, truancy, absenteeism and home factors.

2.4.1 Sample Size

The researcher purposively selected a sample of 6 public primary schools with a population of 2639 pupils and 47 English Language teachers. The sample of 6 schools represented 33.3 % of the 20 schools.

2.4.2 Research Design

The research design adopted for the study was correlational Ex- post Facto. A research design is a structure that shows how all the parts of a research project work together to address the research questions (Kombo & Tromp, 2006).

3. Results

The present study was carried out with a view to respond to the research question: What is the relationship between writing dyslexia and academic performance of upper primary learners in public schools in Changamwe Sub County, Kenya. In the study data from to 160 learners (male 91 and 69 female) was evaluated. According to the results (Table 1), there was a moderate positive correlation r (158) = 0. 4912*, $p < 0.05$ between writing and overall academic performance in all the classes. This means that an increase in scores in writing will lead to an increase in scores in the overall performance. Therefore, writing is statistically and significantly related with academic performance.

Table 1. Correlation between Writing and Academic Performance in Various Classes

	Class 5	Class 6	Class 7	Class 8	All Classes	Male	Female
Overall Academic Performance	0.4904*	0.5350*	0.2772*	0.6526*	0.4912*	0.4667*	0.5141*
Sig. Level	0.0032	0.0003	0.0719	0.0001	0.0000	0.0000	0.0000
Observations	34	42	43	41	160	91	69

*. Correlation is significant at the 0.05 level

3.1 Table 2 Correlations between All Variables

In Table 2 there was a strong positive correlation between reading and writing, r (158) = 0.5559, $p < 0.05$. There was however a statistically significant moderate positive correlation between reading and composition, r (158) = 0.3867, $p < 0.05$. Correlation between Reading and Overall Performance was equally statistically significant moderate and positive at, r (158) = 0.4876*, $p < 0.05$ showing a relationship between the two.

Table 2. Correlation Between All Variables

	Reading	Writing	Composition	Language	Mathematics	Overall Academic Performance
Reading	1.0000					
Sig. Level						
Observations	160					
Writing	0.5559*	1.0000				
Sig. Level	0.0000	0.0000				
Observations	160					
Composition	0.3867*	0.6851*	1.0000			
Sig. Level	0.0000	0.0000	0.0000			
Observations	160	160				
Eng. Language	0.6741*	0.4733*	0.5757*	1.0000		
Sig. Level	0.0000	0.0000	0 .0000	0.0000		
Observations	160	160	160	160		
Overall Academic Performance	0.4876*	0.4912*	0.5790*	0.6979*	0.6631*	1.0000
Sig. Level	0.0000	0.0000	0.0000	0.0000	0.0000	
Observations	160	160	160	160	160	160

Correlation is significant at the 0.05 level

Table 2 had a significant strong positive correlation between Writing and Composition grades, r (158) = 0. 6851*, $p < 0.05$, with Writing scores increasing as the Composition scores also increased.

3.2 Hypothesis Testing

The researcher used Pearson's product moment correlation coefficient to test the hypothesis. The data from all the 160 pupils who were screened and suspected to exhibit dyslexic characteristics were used. The Regression Analysis was carried out to check how reading, writing, and mathematics predicted the overall performance. The data from all the 160 pupils who were carefully chosen and suspected to exhibit dyslexic characteristics were used. The Regression Analysis was carried out to check how reading, writing, and mathematics predicted the overall performance

Table 3. Contribution of Reading, Writing and Mathematics dyslexia to academic performance

Source	SS	Df	MS		Number of Obs = 160	
Model	103504.131	3	34501.3771		F(3, 156) = 60.77	
					Prob > F = 0.0000	
					R-squared = 0.5389	
Residual	88571.5142	156	567.766117		Adj. R-squared = 0.5300	
Total	192075.646	159	1208.02293		Root MSE = 23.828	
Overall Total	Coef.	Std. Err.	T	P>|t|	[95percent Conf. Interval]	
Reading	.9880345	.3079596	3.21	0.002	.3797258	1.596343
Writing	.5037507	.1923815	2.62	0.010	.1237419	.8837595
Mathematics	2.915194	.3297943	8.84	0.000	2.263756	3.566633
Cons	25.87055	10.97255	2.36	0.020	4.196608	47.5445

After the multiple regression analysis was run, three variables (reading, writing and mathematics) were found out to statistically and significantly predict academic performance, F (3, 156) = 60.77, $p < 0.05$, R2 = 0.5389. All three variables added statistically significantly to the prediction, $p < 0.05$. From the F statistics the calculated value was 60.77 while the table value was 215.71. Since 60.77 was less than 215.71 it was regarded as a good fit. While reffering to the coefficient of determination (r2), we can therefore conclude that the Reading, Writing and Mathematics grades explained over 53 percent of the overall academic performance. The Null hypothesis is therefore rejected and the alternative accepted. Thus, there is statistically significant correlation ($p < 0.05$) between writing dyslexia and academic performance in upper primary learners in public schools in Changamwe Sub County, Kenya.

3.3 Pupils' Writing Results

The researcher asked the 160 pupils with dyslexic characteristics to do a ten-minute timed test. The students asked to write two paragraphs about themselves. The researcher marked and counted students with problems on sentence construction, the spelling of words, language level used, speed of writing, size of letters and spacing of letters. This is in line with the findings of Farmer *et. al* (2002) who reported that students with dyslexia were more prone to using simple and familiar words and sentences. The results are presented in (Table 4).

Table 4. Writing Domains and Dyslexia

Domains Tested in Writing	No. of students with Difficulties	Percentage (%)
Language	139	86.88
Spelling	145	90.63
Speed of Writing	132	82.50
Sentence Construction	147	91.88
Jumbled letters	152	95.00
Size of letters (oversize)	131	81.88

From Table 4, the pupils had difficulty in spelling (90.63 percent); they jumbled letters (95 percent) and had difficulty in sentence construction (91.88 percent) which severely impacted negatively in their language. All these characteristics are symptoms of children with dyslexia (Davis & Braun, 1994, p. 20). The dyslexics tended to use words they were familiar with even if they were not right in that context.

3.4 Bangor Test Results Derived from Identifying Students with Dyslexic Characteristics

The Bangor Test (Miles, 1997) was used to measure cognitive abilities like short-term and working memories. It was also used to examine spatial awareness across sub-tests of laterality (Left-right body parts), repeating polysyllabic words, subtraction, and multiplication tables, month's forwards and backwards among others. The scoring was based on each sub-test's result with (+) indicating a positive dyslexic result, (-) showing negative while (0) meant an ambiguous result. A summation of the positives and negatives was then done where the zeroes were treated as half positives. The more positive result got from the summation, the higher the risk of Dyslexia.

Table 5. Bangor Dyslexia Test Results

Indicators for Dyslexia	No. of Positive (+) indicators in the pupils out of 160	Percentage (percent)
Laterality (Left-right body))parts)	115	71.88
Repeating polysyllabic words	153	95.63
Months forwards	140	87.50
Months backwards	153	95.63
Digits forwards	147	91.88
Digits reversed	153	95.63
b-d confusion	140	87.50
Familial incidence	135	84.38

Table 5, shows that the most prevalent positive results from the 160 pupils after taking the Bangor Dyslexia Test were based on reading polysyllabic words (95.63 percent). According to the phonological theory, phonological awareness involves relating the grapheme (letter) and phoneme (sound). Pupils with dyslexic characteristics erase phonemes at the beginning and end of words. The researcher noted that the pupils faltered during the reading process as well. They also found difficulty reciting months and digits both forwards and in reverse. These weak reading skills and problems with short term memory are symptoms associated with dyslexia. Other prominent positive indicators of dyslexia included b-d confusion and subtraction (mental arithmetic). The researcher used the Bangor Test and Hardin, Simmons University (2014) tool for identifying dyslexic characteristics in children. The analysis was thus based on the screening test results. The researcher also noticed cases of brothers and sisters with dyslexia (84.38) percent. This is in line with the findings of the International Dyslexia Association (2012) which stated that dyslexia ran in families and having a parent or sibling with dyslexia increased the probability of one having dyslexia.

3.5 Results on the Effect of dyslexia on Academic Performance

Table 6. Effects of Dyslexia

Variable	Obs	Mean	Std. Dev.	Min	Max
Reading dyslexia affects academic performance	43	4.906977	.2939026	4	5
Writing dyslexia affects academic performance	43	4.55814	.5024855	4	5
Mathematics dyslexia affects academic performance	43	4.488372	.5057805	4	5
Writing Dyslexia affects overall academic performance	43	4.581395	.4991687	4	5
Dyslexia affects word reading	43	4.55814	.5024855	4	5
Dyslexia affects ordering and alignment of letters	43	4.55814	.5024855	4	5
Dyslexia affects writing ability	43	4.627907	.4890835	4	5

In Table 6, the researcher sought to find out the effects of reading dyslexia on academic performance. It was found that reading dyslexia affects reading, ordering of alphabetical letters, writing ability and consequently academic performance. Students with dyslexia also have poor spelling, punctuation and arrangement of ideas, apart from poor grammar and sentence construction.

These attributes impact on their academic writing leading to low performance especially in English and composition writing in the Primary School. The teachers' ratings were clustered around the mean and they agreed that dyslexic characteristics in pupils affected pupils' reading (mean = 4.91), writing (mean = 4.56), mathematics (mean = 4.49) and academic performance (mean = 4.58). They also indicated strongly that Dyslexia affects word reading (mean = 4.56), place value alignment (mean = 4.56) in mathematics and writing ability of pupils (4.63). The findings highlight that

reading is not the only skill affected by dyslexia, which has important implications for education.

3.6 Results on Teacher's views on Dyslexia

Table 7. Teachers' Views on Dyslexia

Variable	Frequency	Mean	Std. Dev.	Min	Max
Ability to identify writing dyslexia	43	1.883721	.9311872	1	5
Know the causes of dyslexia	43	1.674419	.6444241	1	4
Screening resources	43	1.395349	.4947118	1	2
Time for support	43	1.27907	.4538503	1	2
Teachers training	43	1.348837	.5293177	1	3
Sharing of information	43	1.581395	.9317817	1	4
Parents acknowledgement	43	1.186047	.5002768	1	3
Parents-Teacher cooperation	43	1.511628	1.222256	1	5

The study sought to find out if teachers in the study were able to identify cases of writing dyslexia or whether schools allocated adequate resources to identify and manage dyslexia (Table 7). The majority of the teachers heard about dyslexia for the first time hence had no ability to identify writing dyslexia (Mean = 1.88, std dev. = 0.93). They also did not know the causes of dyslexia (mean = 1.67, std dev. = 0.64) although the answers had some variation in their ratings. The teachers were unanimous that schools did not commit any resources (mean = 1.39, std dev = 0.49) or time to support (mean = 1.28, std dev. = 0.45) students with learning needs like Dyslexia. Besides, the teachers were not trained on managing dyslexia (mean = 1.34, std dev. = 0.53) and they were equally not sharing information on pupils with learning needs among themselves (mean = 1.6, std dev. = 0.93). These findings agree with those of Bos, Mather, Dickson, Podhajski, & Chard (1999) which found that most teachers were not adequately prepared to teach students with dyslexia. Similarly special education teachers, also had limited knowledge and skill to do so.

3.6 Effect of Teacher's Class Sizes on Writing Dyslexia

Table 8. Teachers' Class Sizes

Class Size	Frequency	Percent
0-40 pupils	1	2.33
41-50 pupils	4	9.30
51-60 pupils	8	18.60
60-70 pupils	0	0.00
Over 70 pupils	30	69.77
	43	100.00

The study also sought to determine if class sizes affected the ability of the teachers to identify writing dyslexia. From the table, the majority of teachers (69.77 percent) reported large class sizes of over 70 pupils. In cases where they were fewer, the classes had an enrolment above 50 pupils per class. The large class sizes could be linked to the implementation of Free Primary Education policy in 2003 after the then NARC government came into power (Otach, 2008).The study found that learners in large classes were more prone to having a learning difficulty than those in smaller classes. In support of this are the findings of Martin (2008), who stated that a crowded classroom was a major impediment to identifying children with learning difficulties such as dyslexia.

4. Discussion

The present study was carried out with a view to determine the relationship between writing dyslexia and academic performance of upper primary learners in public schools in Changamwe Sub County, Kenya. In the study data belonging to 160 learners (male 91 and 69 female) was evaluated. a moderate positive correlation r (158) = 0. 4912*, $p < 0.05$ between writing and overall academic performance. This means that an increase in scores in writing will lead to an increase in scores in the overall performance. Therefore, writing is statistically and significantly related with academic performance. From the coefficient of determination (r2), this indicated that writing explained 24.1 percent of the overall performance. The components that comprise overall academic performance and involve writing include English Composition, English Language and Mathematics. Composition tests the pupil's ability to sequence ideas logically in the best handwriting.

From Table 2, there was a statistically significant strong positive correlation between Writing and Composition grades, r (158) = 0. 6851*, $p < 0.05$, Writing scores increased as the Composition scores also increased. From the coefficient of determination (r2), and the data collected from all the pupils, Writing explained 46.9 percent of the Composition scores. Writing had a statistically significant moderate positive correlation with English Language, r (158) = 0. 4733*, $p < 0.05$, means that as the Writing ability increases the English language scores also increases.

From the coefficient of determination (r2), it explained 22.4 percent of the language grades. Ability to write well greatly impacts on Academic performance. Illegible or transposed digits have grave consequences in sentence construction and paragraph build up. The study confirms that students with dyslexia have persistent spelling problems and organization of ideas.

4.1 Limitations of the Study

The researcher was given limited time to interact with the learners thus limiting the amount of time spent on each learner. There was assumption of information given as true though social construction of truth is influenced by ones' world view.

5. Recommendations of the Study

Learners with writing dyslexia have a difficulty with spelling and spacing of words. Teachers should differentiate words on the chalkboard using colored chalk. Teachers should also use well- spaced letters. Writing dyslexia makes learners to be slow at writing due to how they manipulate the pen as they write (Thomson, 2008). Teachers should leave writing on the chalkboard long enough to give the child ample time to copy from the black board. In Kenya the learners with learning disabilities like writing dyslexia are not accommodated in assessment considerations by Kenya National Examinations Council. The KNEC should consider giving such learners more time in writing exams since they take long as they write and continuously make mistakes. Their work should also be given special consideration in marking, grading, and certification of the national examinations. The teacher training curriculum should include more Special Education units so that teachers are more conversant with learning difficulties. This will help them be effective in assisting learners Rose (2009), Raja Kumar, et al. (2005). This agrees with the findings of Bender (2002) which stated that teaching and learning resources enhanced learning of those with learning disabilities. It also should make adjustments on the present curriculum to accommodate dyslexics and other learners with special needs. The government should also address teacher shortages in public primary schools as majority of the classes had above 70 pupils in a single stream. The large and crowded class sizes make differentiated teaching for pupils with learning disabilities to be untenable.

From the findings of the research it was evident that most teachers in the primary schools found difficulty in differentiating writing dyslexia from other learning disabilities. There should be regular in- servicing of all teachers to equip them with new ways of supporting learners with learning difficulties to realize their potential. It was evident that identifying a child with writing dyslexia is difficult for both the parents and teachers. Before any intervention measures are put into place the causes of the learning difficulty need to be identified (Hulme & Snowling, 2011). Teachers in the public primary schools should make use of differentiation practice where they attend to the learners based on their academic capabilities. The primary school teachers should share information about the learners' specific areas of weaknesses and strength and use these strong areas to improve the learner's weaknesses (Torgesen, 2000). The teachers can give activities that involve writing the letters that are confused. The teacher can also organize simple games like matching lower case letters to the upper case letters. They can also write a word on the chalkboard and ask the learner to identify the first or last letter since dyslexics omit first or last phonemes as they read (Hulme & Snowling, 2009). Apart from this the teacher can give an activity that involves identifying a word from a group of words in a sentence and writing them down. Similarly the teacher can take the learners outside and teach shaping of the letters on the ground while naming it or drawing dots and use scaffolding to shape the letters that are a problem to the learner. For teaching sequencing of words some words with missing letters can be written on the chalkboard or sentences jumbled up on the chalkboard and they are asked to arrange them in an orderly way to give meaning.

6. Conclusion

The main aim was to investigate if there was any relationship between writing dyslexia and academic performance. The study found that there was a statistically significant relationship between writing dyslexia and academic performance. Dyslexia greatly impairs the pupil's ability to read, comprehend and organize ideas. This greatly affected their academic performance since all subjects in the curriculum involve reading and comprehension and writing. The effect of dyslexia equally compromised the pupils' ability to write legibly. Most of the letters were oversized and jumbled. Pupil's inability to write could make some of them to have low self- concept and this could erode their confidence and ability to perform well. The cumulative effect of not being able to read, write, comprehend and organize ideas made it difficult for pupils to perform well in English. Their hesitation in writing could end up eating into their test or examination time predisposing them to failure. Their inability to copy words correctly could lead to wrong words with wrong meanings resulting in wrong answers.

Acknowledgements

The authors acknowledge Africa Nazarene University for providing a conducive environment to accomplish this study.

References

Adediwura, A. A., & Tayo, T. (2007). Perceptions of teacher knowledge, attitude and teaching skills as predictor of Academic Performance in Nigerian Secondary Schools. *Educational Research and Review, 2*(7), 165-171.

Bender, L. M. (2002). Teaching Children with Learning Disabilities. Boston: Merril Prentice- Hall.

Berninger, V. (2009). Highlights of programmatic, interdisciplinary research on writing. Learning Disabilities. *Research and Practice, 24,* 68-79.

Berninger, V. W., Nielsen, K. H., Abbott, R. D., Wijsman, E., & Raskind, W. H. (2008). Writing problems in developmental dyslexia: Under-recognized and under-treated. *Journal of School Psychology, 46,* 1-21.

Callens, M., Tops, W., & Brysbaert, M. (2011). Cognitive profile of higher education students with an indication of dyslexia. Manuscript submitted for publication.

Connelly, V., Campbell, S., MacLean, M., & Barnes, J. (2006). Contribution of lower order skills to the written composition of college students with and without dyslexia. *Developmental Neuropsychology, 29,* 175-196. http://dx.doi.org/ 10.1207/s15326942dn2901_9

Davis, R. D., & Braun, E. M. (1994). The gift of dyslexia. Perigee: New York.

Dockrell, J. E., Lindsay, G., & Connely, V. (2009). The impact of specific language impairment on adolescents. *Exceptional Children, 75*(4), 427-446.

Eshiwani, G. (1983). Factors influencing performance among primary and secondary school pupils in Western Province in Kenya. *A policy Study.*

Farmer, M., Riddick, B., & Sterling, C. (2002). Dyslexia and inclusion, assessment and support in higher education. Philadelphia, PA: Whurr Publishers Hardin Simmons University. Characteristics of dyslexia. Retrieved on 19th September, 2014 from https//;www.hsutx.edu Hill,

Hulme, C., & Snowling, M. J. (2009). Developmental Disorders of Language and Cognition. Oxford: Wiley-Blackwell., *434.*

Hulme, C., & Snowling, M. J. (2011). Children's Reading Comprehension Difficulties, *Nature, Causes, and Treatments. Current, 20*(3), 139.

International Dyslexia Association (2009). Just the Facts. Recommended reading for Parents, 1- 2. Retrieved on October 1, 2014, from IDA website, www.interdys.org.

International Dyslexia Association (2012). Dyslexia in the classroom. What Every Teacher should know. Baltimore M.D 21202. Retrieved from Info@interdys.org www.interdys.org on August, 12 th 2015.

Iwan, P. (2013). Addressing the challenges of dyslexia. The Mail guardian. Retrieved from mg.co.za/article/ 2013-09-20-00- addressing the challenges of dyslexia.

Katana, R. (2010). Factors affecting performance in K.C.P.E. in Magarini Division of Malindi District. M. Ed project, University of Nairobi.

Kerlinger, F. N. (1986). Foundations of Behavioral Research. Fort Worth: Holt, Rinehart & Winston.

Kiai, A. (2012). Koi and the Dirty Road. Sasa Sema Publication, Nairobi. Kenya.

Kirigia, K. E. (1991). Assessment of English reading comprehension of pupils completing primary education. A cases study of Meru municipality zone. A master's research thesis: Kenyatta University.

Kombo, K. D., & Tromp, D. (2006). Proposal and Thesis writing: Pauline Publications Africa 7th Reprint.

Kothari, C. R. (2004). Research Methodology, Methods and Techniques. New Age International Limited, New Delhi 2nd revised Edition.

Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2003). Defining dyslexia, comorbidity, teachers' knowledge of Language and Reading: A definition of dyslexia. *Annals of Dyslexia, 53,* 1-14.

Miles, T. R. (1997). Bangor Dyslexia Test (2nd Ed.).Learning Development Aids.

Ministry of Education, Science and Technology. (2013). Changamwe Sub-County K.C.P.E.Results Analysis.

Mugenda, O. M., & Mugenda, A. G. (2003). Research methods: Quantitative and Qualitative approaches. Acts

Press.Nairobi, Kenya.

O'Mahony, P., Dempsey, M., & Killen, H. (2008). Handwriting speed: Duration of testing period and relation to socio-economic disadvantage and handedness. *Occupational Therapy International, 15,* 165–77.

Osborne, P. (1999). Pilot study to investigate the performance of dyslexic students in written assessments. *Innovations in Education and Training International, 36,* 155-160. http://dx.doi.org/ 10.1080/1355800990360208.

Otach, O. (2008). Abolishing school fees in Africa: Lessons from Ethiopia, Ghana, Kenya, Malawi and Mozambique. Retrieved from http://www.kenpro.org on July 6, 2015.

O'Toole, E. C. (2010). Writing ability and academic performance of first-year psychology Students in South Africa. Unpublished honors thesis, University of Witwatersrand, Johannesburg.

Pekrun, R., Elliot, A. J., & Maier, M. A. (2009). Achievement goals and achievement emotions: Testing a model of their joint relations with academic performance. *Journal of Educational Psychology, 1,* 115–135. Policy framework for education and training: Reforming education and training in Kenya. Sessional paper [July] 2012, Ministry of Education, Ministry of Higher Education, Science and Technology.

Rajakumar, P., Kumar, S., Uppal S., & Devikar, V. (2005). National Curriculum Framework, National Council of Educational Research and Training, New Delhi: NCERT Publication.

Ramus, R., Rosen, S., Dakin, S., Day, B., Castellote, J., White, S., & Frith, U. (2003). Theories of Developmental Dyslexia: *Insights from a Multiple Case Study of Dyslexic Adults, 126,* 841-865.

Republic of Kenya, (2005). Sessional Paper No.1 on Policy Framework for Education, Training and Research. Nairobi; (GOK), Government Printer.

Rindermann, H., Michou, C. D., & Thompson, J. (2011). Children's writing ability: effects of parent's education, mental speed and intelligence. Learning and Individual Differences, *21,* 562–8.

Rose, J. (2009). Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties. Retrieved from http://dera.ioe.ac.uk/14790/1/00659-2009DOM- EN.pdf on 15/11/14

Sumner, E., Connelly, V., & Barnett, A. L. (2013). Children with dyslexia are slow writers because they pause more often and not because they are slow at handwriting execution. Reading and Writing: *An Interdisciplinary Journal, 26,* 991-1008. http://dx.doi.org/ 10.1007/s11145- 012-9403-6.www.psychology.brookes.ac.uk.

Symthe, I., Everatt, J., & Salter, R. (2004). International book of dyslexia: A guide to practice and resources. Chi Chester, UK: Wiley.

Thomson, M. (2008). Dyslexia and inclusion in the secondary school: cross-curricular perspectives. The Sage Handbook of Dyslexia, 381–94. London: Sage.

Torgesen, J. K. (2000). Individual Differences in response to early Interventions in Reading: The Lingering Problem of Treatment Resisters. *Learning Disabilities & Research Practice, 15,* 55-64.

Tyson, D. F. (2009). Parental involvement in middle school: A meta-analytic assessment of the strategies that promote achievement. *Developmental Psychology, 45,* 740-763.

World Bank (1990). Primary Education. A World Bank Policy Paper. World Bank